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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2004900245 for a patent by CTECH EQUIPMENT PTY. LTD. as filed on 21 January 2004.

I further certify that the above application is now proceeding in the name of CTECH CLOSURES PTY LTD pursuant to the provisions of Section 113 of the Patents Act 1990.

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Improvement in a moulded plastic closure for a container.

There are numerous examples of prior art for closures for containers which fail to observe the need for a proper relationship between the operation of a tamper evidencing means by rotation of the closure in a direction to remove the closure from the container and the sealing means between the closure and the neck of the container which sealing means because of the removal rotation of the closure and the pitch of the thread of closure is removed from a sealing position on the neck of the container before sufficient rotation of the closure has occurred to cause the tamper evident feature to operate.

For example

Taha in US Patent 6,640,988 teaches

"A closure for connection to a container with a threaded neck portion includes an upper wall with a lower surface and a skirt formed integrally with and extending generally downwardly from the upper wall. An internal helical thread is formed on an inner surface of the skirt for engaging the threaded neck portion to thereby secure the closure to the container. An inner annular seal extends generally axially downwardly from the upper wall to sealingly engage an inner surface of the neck portion. The inner annular seal has an inner seal apex area and a downwardly sloped surface extending generally downwardly and away from the upper wall to the inner seal apex area. A gas barrier seal has an annular sealing bead positioned between the inner seal apex area and the upper wall inner surface for sealingly engaging the inner surface of the neck portion. The downwardly sloped surface of the inner annular seal holds the annular sealing bead at least adjacent the lower surface of the upper wall. An oxygen absorbing liner can also be connected to the upper wall."

and

Taha in US Patent 6,626,310 teaches

"A closure for a container with a neck portion and an external helical thread formed on the neck portion includes an upper wall and a skirt formed integrally with and extending generally downwardly from the upper wall. An internal helical thread is formed on the skirt for engaging the external helical thread of the neck portion to thereby secure the closure to the container. The internal helical thread is preferably asymmetrical in cross section. A first annular seal extends generally radially inwardly toward a central axis of the closure from the inner skirt surface. The first annular seal sealingly engages the outer surface of the neck portion. A second annular seal extends generally axially downwardly from the upper wall and sealingly engage an inner surface of the neck portion. A thickness of the neck portion between the first and second annular seals is greater than the distance between the first and second annular seals before installation of the closure on the container. When the closure is installed on the container, the first and second annular seals are biased toward each other and against the outer and inner surfaces,

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respectively. A third annular seal is provided on a lower surface of the upper wall between the first and second annular seals for engaging an upper edge of the container

neck portion. A tamper-evident security ring is frangibly connected to the skirt and includes a plurality of tabs that prevent removal of the security ring from the container."


and

Taha in US Patent 6,551,093 teaches

"A mold assembly for a container closure includes a mold portion with a stripper ring adapted for engaging a shoulder of the closure, and a threaded core having an external, asymmetrical helical thread defining an internal, asymmetrical helical thread of the closure. The external, asymmetrical helical thread has a ramped surface defining a ramped surface of the internal, asymmetrical helical thread. Relative linear movement between the stripper ring and the threaded core causes withdrawal of the threaded core from the closure in a linear direction. The ramped surfaces of the internal and external, asymmetrical helical threads cooperate to facilitate the withdrawal."

The disclosed inventions are deficient in that they do not consider the need to avoid the problem whereby tampering with or degradation of the contents of a container can occur by ingress of air or other contaminants when the seal between the closure and the container neck are not in proper relationship and the seal is broken before evidence of tampering occurs.

The present invention is an improved closure and mold assembly incorporating improvements such that the sealing means between the closure and the container neck and the tamper evident means exhibit a relationship such that upon rotation of the closure to effect removal from the container the tamper evidencing means operates before the seal is broken between the closure and the container neck.


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